

PUBLISHED

UNITED STATES COURT OF APPEALS

FOR THE FOURTH CIRCUIT

CHARLOTTE BINAKONSKY, individually
and as mother and next friend of
the minor children and as personal
representative of the estate of the
deceased, aka David Alan
Binakonsky; JANE MARILYN
BINAKONSKY, minor child of the
deceased; RACHEL DARA
BINAKONSKY, minor child of the

No. 96-2165

deceased; LUCY ANN BINAKONSKY,
minor child of the deceased; EMILY
BINAKONSKY, minor child of the
deceased,
Plaintiffs-Appellants,

v.

FORD MOTOR COMPANY,
Defendant-Appellee.

Appeal from the United States District Court
for the District of Maryland, at Baltimore.
Alexander Harvey II, Senior District Judge.
(CA-95-2529-H)

Argued: June 2, 1997

Decided: January 5, 1998

Before HALL and NIEMEYER, Circuit Judges, and
BUTZNER, Senior Circuit Judge.

Affirmed in part, reversed in part, and remanded by published opinion. Senior Judge Butzner wrote the majority opinion, in which Judge Hall joined. Judge Niemeyer wrote a dissenting opinion.

COUNSEL

ARGUED: Martin Henry Freeman, FREEMAN & JENNER, P.C., Rockville, Maryland, for Appellants. Malcolm Edward Wheeler, PARCEL, MAURO, HULTIN & SPAANSTRA, P.C., Denver, Colorado, for Appellee. **ON BRIEF:** Grace R. den Hartog, Joseph K. Reid, III, MCGUIRE, WOODS, BATTLE & BOOTHE, L.L.P., Richmond, Virginia, for Appellee.

OPINION

BUTZNER, Senior Circuit Judge:

The widow and children of David Binakonsky, who brought this action against the Ford Motor Company, appeal the district court's entry of summary judgment for Ford. Because there are genuine issues of material fact, we vacate the district court's summary judgment and remand the case for trial.

I

In February 1988, David Binakonsky purchased a 1988 Ford E-150 Econoline van equipped with a 5.8 liter fuel-injected engine. Like most full size vans, the Ford E-150 contained a shortened engine compartment which was situated between the driver and passenger seats. The engine had an insulated, fiberglass cover known as a "dog-house."

The fuel system of the 1988 E-150 consisted of plastic (Nylon 11 or 12) fuel lines and plastic "snap-together" fuel line connectors. The plastic fuel lines carried fuel from two 20-gallon fuel tanks through a high-pressure electronic fuel pump and up to the fuel injection rail at the rear of the engine. The plastic connectors were used as attach-

ment mechanisms along the fuel lines, and metal "snap-together" connectors were used to connect the lines to the engine. The E-150 van also had an inertia fuel cut-off switch to shut off the fuel pump and stop the flow of fuel to the engine in the event of an accident.

On August 30, 1992, Binakonsky drove his E-150 van off the road and into a large tree. The accident occurred in Maryland, whose substantive law is applicable to this case. Upon impact, the engine was pushed into the passenger compartment. Gasoline ignited, an intense fire erupted, and Binakonsky, unable to escape the burning vehicle, was killed. Accident reconstruction experts estimated the van hit the tree at a speed between 40 and 47 miles per hour. The speed limit was 30 m.p.h. A postmortem examination revealed Binakonsky's blood-alcohol content was between .14% and .16%, far above Maryland's allowable limit. He was an alcoholic with a long history of serious traffic violations, and, at the time, had no license.

The plaintiffs seek damages for Binakonsky's death as result of the postcollision fire. Their claims are based on the "crashworthiness" doctrine. Crashworthiness cases differ from traditional automotive product liability cases. Complaints in these cases do not allege that a defect in the vehicle caused the initial accident, which in this case was the crash into a tree. Instead, complaints in crashworthiness cases allege that a defective product or a defectively designed product caused or aggravated injuries after the initial accident. See generally Volkswagen of America, Inc. v. Young, 272 Md. 201, 321 A.2d 737, 739-45 (1974) (explaining "crashworthy doctrine"). The plaintiffs allege that the van's defectively designed fuel system caused it to explode in flames after the crash. The plaintiffs contend that when the E-150 crashed, its plastic fuel lines and connectors ruptured. They allege that the ensuing fire was ignited and continually fed by siphoned fuel from both tanks.

The autopsy report of the assistant medical examiner for the State of Maryland is consistent with the plaintiffs' allegation that Binakonsky died as a result of the fire. The autopsy and testimony of the assistant medical examiner disclosed that the cause of death was thermal injury to the larynx from breathing superheated air. He also had fourth degree burns over 100% of his body surface, and a carbon monoxide level of 8%. The assistant medical examiner testified that the autopsy

disclosed that all fractures, including a skull fracture, were thermal fractures.

The plaintiffs brought their allegations of defective design under a theory of strict liability, first adopted by Maryland courts in Phipps v. General Motors Corp., 278 Md. 337, 350-53, 363 A.2d 955, 957-63 (1976). The term "strict liability" does not make the seller of the product an insurer of its safety. The bulk of the plaintiffs' documentary and testimonial evidence addresses the alleged defects in the design of the fuel system--namely that the plastic fuel lines and connectors were defective because they were not designed to withstand excessive heat and pressure. The plaintiffs also maintained that the fuel system was not equipped with an antisiphoning device which would have stopped the fuel from flowing into the engine compartment.

The complaint also alleged negligence, but during the proceedings in the district court the plaintiffs conceded that Binakonsky's contributory negligence barred recovery under their negligence counts.

Ford based its motion for summary judgment on the assertions that Maryland does not recognize strict liability premised on the theory of a design defect; Ford also alleged that contributory negligence and assumption of risk preclude recovery. Finally, Ford asserts that the van was reasonably designed as a matter of law. See Binakonsky v. Ford Motor Co., 929 F. Supp. 915, 920 (D. Md. 1996).

The district court properly held that Maryland recognizes strict liability claims based on defective design in a "crashworthy case." Binakonsky, 929 F. Supp. at 921. The district court also properly held that contributory negligence is not available in Maryland in a suit alleging strict liability. Id. at 922. After weighing factors of price, uniqueness of design, practicality of alternative designs, and the circumstances of the accident itself, the court concluded that the design of the 1988 E-150 van was reasonable. Id. at 922-24.

II

We review summary judgment claims de novo, drawing all facts and reasonable inferences in favor of the nonmoving party. Ramos v.

Southern Maryland Elec. Co-Op. Inc., 996 F.2d 52, 53 (4th Cir. 1993). Summary judgment is warranted whenever there exists no genuine issue of material fact and the moving party proves that it is entitled to judgment as a matter of law. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 247-48 (1986). The plaintiffs have the burden of proof, and they must establish each essential element of their case. Celotex Corp. v. Catrett, 477 U.S. 317, 323-24 (1986). They must meet their burden of proof by showing more than an existence of a scintilla of evidence. Barwick v. Celotex Corp., 736 F.2d 946, 958-59 (4th Cir. 1984). On appeal the court reviews de novo, applying the same standards as the district court. Ramos, 996 F.2d at 53.

Maryland, in Phipps, 278 Md. 337, 363 A.2d 955, adopted Restatement (Second) of Torts § 402A (1965), which allows users and consumers of defective products to sue the products' sellers. To prevail in a defective design case on the theory of strict liability, a plaintiff must show 1) the existence of a defect, 2) the attribution of a defect to the seller, and 3) a causal relation between the defect and the injury. Jensen v. American Motors Corp., 50 Md. App. 226, 234, 437 A.2d 242, 247 (1981).

In order to prove the existence of a design defect in strict liability actions, the plaintiffs must show that the alleged defect rendered the van "unreasonably dangerous" to the consumer. See Phipps, 278 Md. at 344, 363 A.2d at 959. Section 402A, Comment I, defines an unreasonably dangerous product as one which is "dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." See Phipps, 278 Md. at 344, 363 A.2d at 959. Determining whether a design is "unreasonably dangerous" requires a balancing of the "utility of the risk inherent in the design against the magnitude of the risk." Phipps, 278 Md. at 345, 363 A.2d at 959. Maryland suggests using a seven factor risk-utility analysis developed by Professor John W. Wade in his seminal article, "Strict Tort Liability of Manufacturers," 19 S.W.L.J. 5, 17 (1965). Troja v. Black & Decker Mfg., 62 Md. App. 101, 108, 488 A.2d 516, 519 (1985); see also Phipps, 278 Md. at 344 n.6, 363 A.2d at 959 n.6.

The district court did not follow Troja's suggestion about the Wade factors. Instead, the court conducted a "reasonableness" inquiry pat-

turned after Dreisonstok v. Volkswagenwerk, A.G., 489 F.2d 1066 (4th Cir. 1974), a crashworthiness case involving the lack of adequate "crush-space" in the Volkswagen microbus. Relying on Virginia negligence law, the Dreisonstok court, balancing the likelihood of harm against the burden of avoiding the harm, concluded that the manufacturer had not violated its duty of ordinary care. The district court in Binakonsky's case held: "The result in Dreisonstok compels the conclusion that defendant Ford cannot as a matter of law on the record in this case be held liable for the death of David Binakonsky." Binakonsky, 929 F. Supp. at 923.

Dreisonstok was helpful with regard to Binakonsky's claim of negligence because both Virginia and Maryland apply common law principles of negligence. Nevertheless, the district court's reliance on Dreisonstok with respect to strict liability based on a postcollision fire is questionable. Phipps clearly explains the fundamental difference between negligence and strict liability in these terms: "The relevant inquiry in a strict liability action focuses not on the conduct of the manufacturer but rather on the product itself." 278 Md. at 344, 363 A.2d at 958. Dreisonstok did not deal with a postcollision fire in a strict liability setting. Consequently, the risk component of the risk-utility balance in Dreisonstok is quite different from the risk in this case.

Since Dreisonstok is an imperfect guide with respect to a claim of strict liability arising out of a postcollision fire, we will instead apply the Wade factors:

(1) The usefulness and desirability of the product--its utility to the user and to the public as a whole.

If properly designed, the Ford van that is the subject of this action is a useful and desirable product.

(2) The safety aspects of the product--the likelihood that it will cause injury, and the probable seriousness of the injury.

The plaintiffs contend that the fuel delivery system was defectively designed. The defendant contends that the system was safe.

The fuel delivery system consisted of two tanks located behind the rear axle. A low pressure pump in the tanks and a high pressure pump on the left side rail underneath the driver's door supplied the fuel to the engine. Plastic lines and connectors carried the fuel from the tanks to the engine compartment. Metal lines attached to the plastic lines fed fuel to the engine. The district court recognized that the impact drove the engine into the passenger compartment and that the gasoline ignited and "was spewed at high pressure into the passenger compartment." Binakonsky, 929 F. Supp. at 918. The fire consumed all of the fuel in the gas tanks.

The district court also believed that the fuel cut-off switch "could hardly have been expected to operate properly in a collision of this magnitude." Binakonsky, 929 F. Supp. at 924. The switch to which the court referred is an inertia activated switch, which is designed to shut off the fuel pump in the event of a collision. Ford takes issue with the district court about the inertia switch. It claims that the inertia switch operated and that upon impact gas did not continue to flow from the tanks until the final stages of the fire. The plaintiffs' expert also assumed, in light of the evidence available to him at the time, that the switch operated.

Though the inertia switch may have operated, the plaintiffs, through the use of Ford documents and by cross-examination of Ford's designated corporate representative, established that gasoline siphoned from the gas tanks into the engine and passenger compartments when the fuel line ruptured:

[Plaintiff's counsel]: My question is very simple. Do you agree with the statement that the 1988 EFI light truck, including an E 150 van, with a 5.8 liter engine with plastic fuel lines uses an in-tank low pressure pump without check valves and a frame rail-mounted high pressure pump with forward/reverse check valve and that it does not prevent tank siphoning if the pressure line between the tank and frame-mounted pump is cut?

JA 589.

Q. . . . So my question is, do you agree with that statement that I just read?

[Ford witness]: I agree with that statement.

JA 590.

An engineer engaged by Ford or its counsel inspected the van after the accident. He found that the nylon fuel lines burned while the metal components did not, reporting his findings as follows:

There is no evidence of collision damage to either of the fuel tanks or their fuel filler systems. The fire has essentially consumed all of the nylon fuel lines leading from the fuel tanks forward to the engine compartment. However, the metal components of the fuel system remain and are relatively undamaged and intact. The fuel injection manifold (rail) remains atop the engine intake manifold and in its proper position. There is no evidence of disruption of the fuel line attachments to that manifold. The high pressure fuel pump and filter are located in an area adjacent to the buckled left frame siderail. There is no evidence of collision trauma that disrupted the high pressure pump itself. The fuel filter is not currently present.

JA 808-09.

This is not the first time Ford has addressed the Econoline fuel system. A Ford employee in 1986 commented: "Design should consider getting rid of plastic connectors to improve overall integrity of the system." A Ford 1987 "Concern Analysis Report: Econoline Fuel Line Leaks" addressed problems with the fuel line leaks in the 1985-87 E-series vans. The same plastic fuel system, consisting of plastic fuel lines and plastic connectors, was incorporated into the 1988 E-150 van Binakonsky drove.

The plaintiffs' expert testified that the plastic fuel connectors in the Binakonsky van came unsnapped during the accident, either by vibration from the accident or by the movement of the various components of the fuel system. He testified that if the fuel lines had been made of braided stainless steel and held together with nut and feral connectors, the fire would not have been fed by fuel and would have been

much more manageable. He also testified that in his opinion Ford should not use nylon 11 or 12 within the heat distribution zone of the engine, explaining:

[T]he broken fuel line in the engine compartment with the separated connectors of the fuel line in the engine compartment go directly to the bottom of the tank where the fuel pump is. And it doesn't matter whether the fuel pump is running or not, it's going to transmit fuel up to the engine compartment.

JA 299.

The plaintiffs produced sufficient evidence to show a likelihood that the fuel delivery system in the event of an accident was unreasonably dangerous and caused serious injury. The plaintiffs' evidence satisfies the second Ward factor.

The third and fourth Wade factors can be considered together for the purpose of this opinion:

(3) The availability of a substitute product which would meet the same need and not be as unsafe.

(4) The manufacturer's ability to eliminate the unsafe character of the product without impairing its usefulness or making it too expensive to maintain its utility.

The engineer engaged by Ford reported on the characteristics of both plastic and metal parts of the fuel delivery system. The fact that metal components of the fuel delivery system were relatively undamaged and intact after the collision, while the plastic components succumbed to fire, gives rise to a reasonable inference that steel lines and connectors would have been safer than plastic. Because the evidence disclosed that other 1988 Ford trucks and cars were using steel rather than plastic fuel lines, steel lines and connectors were available as a suitable substitute for the plastic.

There is no question that gasoline siphoned from both tanks and that it fueled the fire until the tanks were empty. The plaintiffs' expert

testified that a slide bar valve placed in front of the fuel tank would stop all flow to the engine automatically within 20 to 60 seconds. He testified that the lack of such device rendered the vehicle defective. He advocated using the simplest slider valve available and estimated the cost of the valve to be between \$1.35 to \$1.60. While claiming that the technology behind the slider valve is not new, he only named NASCAR vehicles and helicopters as examples of fuel systems utilizing his proposed design. Ford argues that the expert's failure to point to other cars utilizing this slider valve rendered it impracticable. But in addition to the expert's personal proposed alternative, plaintiffs produced evidence to show that Ford had designed its own version of antisiphoning check valves for some 1988 vehicles. Discovery was incomplete at the time the district court granted summary judgment. See Binakonsky, 929 F. Supp. at 917 n.1. Consequently, the plaintiffs were unable to prove the relative costs of making the fuel delivery system safer. Nevertheless, since the evidence disclosed that steel fuel lines, steel connectors, and check valves were used in other Ford vehicles, the plaintiffs are entitled to the reasonable inference that the costs of making the van safer were not prohibitive.

(5) The user's ability to avoid danger by the exercise of care in the use of the product.

This factor is phrased in terms of the user's "exercise of care"--a contributory negligence concept, but contributory negligence is not a defense in a strict liability action. § 402A com. n. Nevertheless, the fifth Wade factor and the prohibition against the defense of contributory negligence can be reconciled. Section 402A com. h provides: "A product is not in a defective condition when it is safe for normal handling and consumption." Maryland has relied on comment h to fashion a defense to strict liability known as "misuse" of the product. This defense is explained in Ellsworth v. Sherne Lingerie, Inc., 303 Md. 581, 495 A.2d 348 (1985):

We conclude, as have most courts which have considered the issue, that "reasonable foreseeability" is the appropriate test, and thus a seller is required to provide a product that is not unreasonably dangerous when used for a purpose and in a manner that is reasonably foreseeable. If a product is unreasonably dangerous for such use it is "defective" within

the meaning of § 402A of the Restatement, and if that defect is a cause of damage the seller will be responsible. On the other hand, if the product is not unreasonably dangerous when used for a purpose and in a manner that is reasonably foreseeable, it simply is not defective, and the seller will not be liable.

Misuse of a product may also bar recovery where the misuse is the sole proximate cause of damage, or where it is the intervening or superseding cause.

303 Md. at 595-96, 495 A.2d at 355 (footnote omitted). Maryland's view of foreseeability in the context of strict liability for second collision cases is set forth in Lahocki v. Contee Sand & Gravel Co., 41 Md. App. 579, 585-86, 398 A.2d 490, 496 (1979), rev'd on other grounds, 286 Md. 714, 410 A.2d 1039 (1980): "We now must adjust our thinking to recognize that accidents are a part of driving . . . and foreseeability is a factual question unless the accident is so unquestionably 'bizarre' as to be a matter over which reasonable minds could not differ." (citation omitted).

While we recognize that at some point foreseeability is so remote that it can be decided by a judge as a matter of law, in most cases foreseeability is an issue left to the jury. Gill v. Hango Ship-Owners/AB, 682 F.2d 1070, 1074 (4th Cir. 1982) (whether plaintiff's injury was foreseeable was an issue for the jury that precluded summary judgment). See also Lust v. Clark Equip. Co., Inc., 792 F.2d 436, 439 (4th Cir. 1986) ("foreseeability of the risk of harm is ordinarily an issue for the jury") (citing Gardner v. Q.H.S., Inc., 448 F.2d 238, 242-43 (4th Cir. 1971)). In this respect federal law and Maryland law do not significantly differ. In Lahocki, 41 Md. App. at 585-86, 398 A.2d at 496; Frericks v. General Motors Corp., 374 Md. 288, 336 A.2d 118 (1975); and Volkswagen, 272 Md. 201, 321 A.2d 737, Maryland courts have held that whether an accident was so unusual as to be unforeseeable is an issue for the jury. In none of those cases did the court rule that the accident was so bizarre that it was unforeseeable as a matter of law.

We cannot say that a car crashing into a tree at as high as 47 miles per hour is "unquestionably bizarre." The same 40-47 mile per hour

single car collision could have been produced by a myriad of other events, such as a car veering off the road to avoid an oncoming collision, or a car losing control on a patch of ice or because of drowsiness. For example, in Frericks, 274 Md. 288, 336 A.2d 118, the plaintiff was injured when the roof of the vehicle he was in collapsed. The roof collapsed when the car ran off the road and overturned due to excessive speed. The Maryland Court of Appeals stated that the accident was not so bizarre as to be unforeseeable as a matter of law. The court also stated that General Motors could be held liable for the "secondary impact injuries" the plaintiff sustained from the defectively designed roof.

The fact that Binakonsky was drunk does not make the physical aspects of the crash any more bizarre. In this respect, care must be exercised not to confuse contributory negligence with misuse. On this issue, Maryland law is clear. "The fact that a negligent driver may be the initial cause of an accident does not abrogate the manufacturer's duty to use reasonable care in designing an automobile to reduce the risk of "secondary impact injuries." Frericks, 274 Md. at 302-03, 336 A.2d at 127. Frericks was decided before Maryland adopted the doctrine of strict liability, but its comment about a negligent driver is applicable to the doctrine. See Restatement (Second) of Torts § 402A com. n.

(6) The user's anticipated awareness of the dangers inherent in the product and their avoidability, because of general public knowledge of the obvious condition of the product, or of the existence of suitable warnings or instructions.

Assumption of risk, sometimes called a form of contributory negligence, is a defense to claims based on strict liability. The defense is available against a plaintiff who unreasonably uses a product despite a known risk of danger. Phipps, 278 Md. at 346, 363 A.2d at 960; 402A com. n. Drunk driving is an unreasonable use of a car, and it is common knowledge that a driver who strikes a tree will cause damage. For this reason, a drunk driver, such as Binakonsky, assumes the risk of injury from the initial impact.

It is not generally known, however, that plastic lines and connectors and the lack of an antisiphoning device will cause a vehicle to

burst into a devastating postcollision fire. Moreover, Ford gave no warning about the likelihood of such a fire. For these reasons the plaintiffs are entitled to the reasonable inference that Binakonsky did not assume the risk of a lethal fire. To reiterate, Binakonsky assumed the risk of injury from the initial impact. For the purpose of summary judgment, it cannot be inferred that he assumed the risk of an allegedly defective fuel delivery system.

(7) The feasibility, on the part of the manufacturer, of spreading the loss by setting the price of the product or carrying liability insurance.

There is no controversy about this factor.

In sum for the purpose of reviewing a summary judgment, the plaintiffs have shown that the lack of an antisiphoning device and the use of plastic connectors and fuel lines were unreasonably dangerous, while steel connectors and lines remained intact. They have disclosed that in 1988 steel components and antisiphoning devices were available and that they were used in other Ford vehicles without incurring prohibitive costs. They have posited valid inquiries about the foreseeability of similar crashes from a variety of mishaps. They have drawn a reasonable inference that the general public was not aware of the dangers of plastic fuel lines and connectors and the absence of an antisiphoning device. This indicates that Binakonsky did not assume the risk of a postcollision fire. At this stage of the proceedings, with respect to the fuel delivery system, the plaintiffs have introduced sufficient evidence to comply with the Wade factors and to establish that the risk of the system outweighed the utility of the vehicle.

III

Having concluded that the plaintiffs have shown sufficient evidence of a defect, we turn to the second and third requirements of their case. See Jensen, 50 Md. App. at 234, 437 A.2d at 247. The second test requires plaintiffs to show that the alleged defect is attributable to the manufacturer. It is undisputed in this case that Ford manufactured Binakonsky's E-150 van, including its fuel system components, and placed it in the stream of commerce. The third and

final Jensen test requires the plaintiffs to show a "causal relation between the defect and the injury." Id.

As one commentator observed, when the issue of causation is in dispute "the primary function of the jury is the determination of questions of fact upon which reasonable persons might differ." W. Page Keeton et al., Prosser and Keeton on the Law of Torts § 45 at 319 (5th ed. 1984). A party's evidence is sufficient to reach a jury under federal law when a jury could reasonably embrace that party's theory of the case. Wratchford v. S. J. Groves & Sons Co., 405 F.2d 1061, 1066-67 (4th Cir. 1969). See also Mayer v. Gray Partners & Co., Ltd., 29 F.3d 330, 334 (7th Cir. 1994) ("the federal standard [is] whether reasonable minds could deem the evidence adequate under the governing substantive rule"). In this case, causation is a two-step analysis. Plaintiffs must prove that a defectively designed fuel system caused the postcollision fire and that the fire was the cause of death. The plaintiffs produced sufficient evidence of a defectively designed fuel delivery system. The plaintiffs' expert testified that both fuel tanks were empty after the crash, indicating that their contents had been consumed by fire in the engine and passenger compartment. Ford contends that initially the fire was fed largely by engine fluids rather than by fuel. Whether fuel or fluids killed Binakonsky raises a genuine issue of material fact that must be submitted to the jury.

Plaintiffs have also produced sufficient evidence to show that the postcollision fire, not the accident itself, caused Binakonsky's death. The postmortem report listed the cause of death as "thermal injuries," adding that there was no evidence of any nonthermal injuries. Dr. Margarita Korella, the assistant medical examiner who performed the autopsy, testified that her examination indicated no nonthermal fractures to the extremities and no evidence of external bleeding. She also testified that there was no "internal evidence of blunt force or penetrating injury to the thoracoabdominal area." Based upon burns found in the larynx, she concluded that the specific thermal injury that caused Binakonsky's death was "the inhalation of superheated hot air."

Ford unsuccessfully argued that Daubert v. Merrill Dow Pharmaceuticals, 509 U.S. 579 (1993), required the district court to disregard what it called Dr. Korella's "foundationless and preposterous opin-

ion." Daubert, however, is inapplicable because it pertains to the scientific validity of an expert's methodology. Dr. Korella, however, was a fact witness. The plaintiffs neither engaged her as an expert nor paid her to testify. Moreover, she completed her autopsy report long before this litigation commenced. Ford is essentially challenging the factual observations that she drew from her examination of Binakonsky's body. See Freeman v. Case Corp., 118 F.3d 1011, 1016 n.6 (4th Cir. 1997) (Daubert inapplicable to testimony based on experience and training). Ford contends that the forces undergone by Binakonsky as a result of the collision were the same as if he had jumped out of a seven-story window. This is a proper issue for cross-examination at trial, but in the summary judgment proceedings the plaintiffs are entitled to the benefit of the findings set forth in the postmortem report and the testimony of Dr. Korella.

IV

Federal law governs whether an issue should be allocated to a judge or jury. Byrd v. Blue Ridge Rural Elec. Co-op., 356 U.S. 525, 537 (1958). See also Burcham v. J.P. Stevens & Co., 209 F.2d 35, 40 (4th Cir. 1954).

To comport with Byrd and the Seventh Amendment, we believe that a case should be submitted to the jury when there is sufficient evidence to support a claim that a particular product design was "unreasonably dangerous." In Singleton v. International Harvester Co., 685 F.2d 112 (4th Cir. 1981), we considered a strict liability claim arising out of accident caused by a farm tractor designed without a Roll Over Protective Structure. After setting forth the Wade factors pertaining to the risk/utility analysis for determining whether the design of the tractor was defective, we stated that "the plaintiffs could create a jury issue on liability for defective design by producing evidence upon which a jury could determine the manufacturer's reasonableness in marketing a tractor without a [Roll Over Protection Structure] in 1948." 685 F.2d at 115 (dictum) (insufficient evidence).

The plaintiffs have produced sufficient evidence about the fuel delivery system to submit the issue of unreasonable dangerous design to the jury. Other courts have stated that this issue is for the jury. See e.g. Freeman, 118 F.3d at 1015 (by implication); Eiland v. Westing-

house Elec. Corp., 58 F.3d 176, 179-81 (5th Cir. 1995); Nettles v. Electrolux Motor AB, 784 F.2d 1574, 1576 (11th Cir. 1986); Walker v. Paccar, Inc., 802 F.2d 1053, 1056 (8th Cir. 1986).

In addition to the genuine issues of material fact that we have mentioned, the parties fundamentally differ about the use of plastic in the fuel delivery system. Ford contends that its use is justified because it is lighter than steel and it delivers cleaner fuel to the engine. The plaintiffs contend that the use of plastic is more dangerous than the use of steel and that steel is readily available without prohibitive cost.

V

We decline to review Ford's contention that foreseeability should be governed by Federal Motor Vehicle Safety Standards. This issue was not addressed in the district court proceedings and was not argued in the parties' briefs. See Cades v. H & R Block, Inc., 43 F.3d 869, 876 (4th Cir. 1994).

VI

The plaintiffs also alleged that the Ford van was defectively designed because it failed to withstand the impact of the collision with the tree, and, consequently, the doors jammed, impairing rescue. With respect to this aspect of the case, the district court rightly found Dreisonstok v. Volkswagenwerk, A.G., 489 F.2d 1066 (4th Cir. 1974), to be helpful in evaluating the risk-utility analysis. The plaintiffs' expert criticized all vans of whatever make because the engine extended into the passenger compartment. But as Dreisonstok and the district court point out, there was no "practical way of improving the 'crashability' which would have been consistent with the peculiar purposes of its design." Binakonsky, 929 F. Supp. at 923. Also, as we have previously mentioned, Binakonsky assumed the risk of collision by driving while drunk. For these reasons, the plaintiffs have failed to satisfy the Wade factors prescribed by Maryland law with respect to the failure of the doors to withstand the impact.

VII

The parties have also briefed at length the restrictions the district court placed on discovery.

After reviewing their arguments, we conclude that for the purpose of summary judgment the district court did not abuse its discretion. Since the case must be tried, however, discovery should be reopened and conducted in accordance with Fed. R. Civ. P. 26 and local rules.

VIII

We affirm that aspect of the summary judgment pertaining to the impact of the collision which resulted in jamming the doors.

We reverse that aspect of the summary judgment pertaining to the van's fuel delivery system and remand the case for trial.

Costs shall be equally divided.

AFFIRMED IN PART; REVERSED IN PART; AND REMANDED

NIEMEYER, Circuit Judge, dissenting:

The majority opinion rules, by implication, that an automobile manufacturer has a duty to design its automobiles to withstand risks of injury from a head-on collision with an oak tree at a speed of 40-47 miles per hour. Because I believe that the majority's holding in this case imposes a duty far greater than that imposed by Maryland law, I dissent.

In August 1992, David Binakonsky, driving his four-year old Ford E-150 van at approximately 65 miles per hour in a 30 mile per hour zone, missed a turn and drove through a wooded area head-on into an oak tree, 20 inches in diameter. Binakonsky's speed at the time of the collision was estimated by experts for both parties to have been between 40 and 47 miles per hour. Binakonsky's blood-alcohol content at the time of the collision was between .14% and .16%, indicating that he was drunk. Moreover, Binakonsky was driving without a license and without insurance.

The impact occurred in the center front of the van so that the sides of the van wrapped around the tree, forming a sharp V in the center-

front bumper area. The tree penetrated the front of the vehicle two to three feet, driving the engine rearward, seriously damaging all of the major components of the vehicle and rupturing the fuel line. The spilling gasoline caught fire, and Binakonsky was dead by the time he was removed from the vehicle. His family contends that the fire caused his death, while Ford contends that he was killed upon impact with the tree.

In claiming that Ford sold a van that was defectively designed, the Binakonsky family contends that Ford "designed, manufactured and located the fuel injection lines, connections, and inertia fuel shut-off switch in a negligent and defective fashion, such that their integrity could not, and did not, survive the frontal collision." They also contend that the van "was not equipped with an anti-siphoning device to prevent fuel from flowing to the front of the vehicle in the event the fuel lines were broken."

With the introduction of electric fuel injected engines in 1988, Ford began using nylon instead of steel for its fuel lines. Ford states that it selected nylon because nylon was superior to steel in delivering cool, clean fuel under pressure to fuel injectors. Ford points out that the van was equipped with an "inertia switch," which is a mechanical device that acts as a fail-safe mechanism to shut off fuel flow in the event of an impact. Ford contends that it was and remains today the only domestic manufacturer of automobiles to incorporate this safety device into the design of its vehicles. The Binakonsky family argues that notwithstanding that safety feature designed to minimize the spilling of gasoline, Ford should have installed a slider valve at the orifice of the fuel tank to prevent gasoline from flowing out of the tank in the event that the fuel lines were severed in a collision. They acknowledge, however, that no passenger vehicle-- car, van, or truck -- incorporated this feature in 1988, or at any time before or since.

The district court granted Ford summary judgment holding that

Defendant Ford had no duty to design the fuel system of an E-150 van in such a way that it would withstand a high speed, head-on crash into a large tree brought about by an inebriated driver.

929 F. Supp. 915, 924. The court explained that the fuel cut-off switch in this particular vehicle could hardly have been expected to operate properly in a collision of this magnitude, which imposed a force on Binakonsky's body equivalent to his jumping out of a seven-story window. *Id.* at 924 & n.9. Interpreting the duties imposed by Maryland law, which in turn incorporates strict liability as stated in § 402A of the Restatement (Second) of Torts, the district court concluded that as a matter of law "the design of this van was not unreasonably dangerous." *Id.* at 925.

I do not take issue with the majority opinion's summary of Maryland law and the fact that Maryland has adopted Restatement (Second) of Torts § 402A (imposing strict liability). As the majority opinion notes, Maryland law requires that a manufacturer design products so as not to be "unreasonably dangerous" to the consumer, and a product is unreasonably dangerous when it is dangerous "to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." Phipps v. General Motors Corporation, 278 Md. 337, 344, 363 A.2d 955, 959 (1976). The majority opinion also correctly notes that Maryland recognizes a misuse defense to strict liability, summarized by Maryland courts as follows:

[I]f the product is not unreasonably dangerous when used for a purpose and in a manner that is reasonably foreseeable, it simply is not defective, and the seller will not be liable.

Misuse of a product may also bar recovery where the misuse is the sole proximate cause of damage, or where it is the intervening or superseding cause.

Ellsworth v. Sherne Lingerie, Inc., 303 Md. 581, 596, 495 A.2d 348, 355 (1985) (footnotes omitted).

Applying these principles, I agree with the district court that as a matter of law the Ford van was not defectively designed. Ford used the latest technology in the design of the fuel system on the van in question, and it incorporated a safety feature that no other manufacturer had adopted, the inertia switch which stops the flow of electrical power to the vehicle's fuel pump, in the event of an impact. The slide

valve that plaintiffs maintain in retrospect should have been employed has never been incorporated into any vehicle, before or since the collision in this case. If the plaintiff's theory that strict liability requires manufacturers to install slide valves in fuel tanks has merit, then all vehicles on the road today are defectively designed. While collisions are foreseeable, the law does not require a manufacturer to design a motor vehicle to withstand any collision; there is a magnitude of collision beyond which it can no longer be said that the vehicle is being "used for a purpose and in a manner that is reasonably foreseeable." Ellsworth, id.

To rule that this case presents a jury question, the majority states, "We cannot say that a car crashing into a tree at as high as 47 miles per hour is 'unquestionably bizarre.'" Slip op. at 11. This, I respectfully submit, misses the issue. The question is not whether an accident is so bizarre as not to be foreseeable, but whether the risk of injury or death is reasonably foreseeable if a design feature is not adopted. Applied to this case, the question is whether it was foreseeable that a slide valve, which has never been used in any motor vehicle, could reasonably have prevented Binakonsky's death. I submit that as a matter of law we must say that this goes beyond foreseeability and into rank speculation. In order to anticipate that such a valve would reasonably have participated in Binakonsky's death, Ford would have had to assume:

1. That Binakonsky could survive a head-on crash with a tree at 47 miles per hour;
2. That the gas tank would survive such a crash and retain the gasoline in it;
3. That the slide valve would survive sufficiently intact as to contain the gasoline;
4. That the fuel pump would not shut off; and
5. That a fire from some other source or that some other post-collision condition would not have killed Binakonsky.

In speculating about such remote possibilities, and others, we would then have to decide whether such a duty applies if the vehicle were driven into a tree, say, at 65 miles per hour, or 85 miles per hour. There must be a legally established limit to a manufacturer's duty. I believe that that limit should be set at a speed where the risk of death can meaningfully be addressed by the design feature at issue.

I find it difficult to conclude that we must assume, in imposing duties of design, that any human-being will survive the impact of a fall from a seven-story window -- the force that Binakonsky was exposed to in this case. If we cannot reasonably foresee that Binakonsky would, except in freakish circumstances, have survived such an impact, we certainly cannot impose a duty on a manufacturer to design a vehicle to prevent post-collision injury from a cause other than the collision itself.

I believe that the holding made by the majority applies a clinical rule in a formulaic way, without considering the common sense factors that must come into play. Rules developed in this manner are antagonistic to the law's role in preserving the manufacturer's duty to produce practicable and desirable safety devices without destroying their ability to continue to develop consumer products. No product can withstand the scrutiny of an absolute safety standard. Yet, that is the direction in which the majority opinion unfortunately is headed.

For these reasons, I would affirm the judgment of the district court.

